PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P200400272WO	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/DK2004/000404	International filing date *(day/month/year)* 10.06.2004	Priority date *(day/month/year)* 10.06.2003
International Patent Classification (IPC) or national classification and IPC A23B7/144, A23B7/148, A23L3/3409, A23L3/3418, B65D88/74, B65D81/20		
Applicant M RSK CONTAINER INDUSTRI AS et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 5 sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☒ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
08.04.2005	26.09.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Boddaert, P Telephone No. +31 70 340-3471

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DK2004/000404

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-22	as originally filed
Claims, Numbers	
1-27	received on 12.04.2005 with letter of 08.04.2005
Drawings, Sheets	
1/3-3/3	as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2-24
	No:	Claims	1,25-27
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-27
Industrial applicability (IA)	Yes:	Claims	1-27
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item I

This report has been made as if the following amendments have not been made , since they have been considered to go beyond the disclosure as filed (Rule 70.2(c) ; Article 34(2)(b) PCT):
Claims 1,25 : In the original disclosure no basis can be found for introducing the term "apart from the first region".

Re Item V

Reference is made to the following documents :

D1 : JP01273515
D2 : US6013293

Remark : It is not clear from claim 1 and claim 25 which technical features belong to the apparatus and which technical features belong to the container (Article 6 PCT).
The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

1. The present application does not meet the requirements of Article 33(2) PCT because the subject-matter of claims 1,25-27 is not new.

a. Document D1 discloses (abstract,claims,figures) a system suitable for controlling the atmosphere within a vegetable preservation cabinet comprising a container including a plurality of walls , an inlet and an outlet , a sensor , a controller , a gas permeable membrane adapted to facilitate the passage there through of different molecules at different rates , the membrane defining a first region for holding a product and a second region defining a gas buffer region.
The subject-matter of claims 1,25,27 is therefore not new.

b. Document D2 discloses (col.2 l.45 - col.3 l.53 , col.7 l.58 - col.8 l.60 , figures , claims) a system suitable for controlling the atmosphere within a container comprising a container including a plurality of walls , an inlet and an outlet , a sensor , a controller , a gas permeable membrane adapted to facilitate the passage there through of different molecules at different rates , the membrane defining a first region for holding a product and a second region defining a gas buffer region , the inlet and outlet being in

communication with the buffer region.
The subject-matter of claims 1,25,26 is therefore not new.

2. Dependent claims 2-24 do not contain any features which , in combination with the features of any claim to which they refer , meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT) , because in these claims a change is defined which comes within the scope of the customary practice followed by persons skilled in the art , especially as the advantages thus achieved can readily be foreseen.

Amended Claims

1. An apparatus for controlling the composition of gases within a container,

said container including a plurality of walls, and at least one inlet and/or outlet,

the apparatus including at least one sensor, at least one controller and at least one gas permeable membrane being adapted to facilitate the passage there through of different molecules at different rates,

said membrane defining a first region and a second region, **characterized in that** the first region being for holding cargo and the second region defining a gas buffer region, apart from the first region, said at least one inlet and/or outlet being in communication with said buffer region.

2. An apparatus according to claim 1, wherein at least one of said at least one inlet and/or outlet includes a valve.

3. An apparatus according to claims 1 or 2, which includes at least two inlets and/or two outlets.

4. An apparatus according to claims 1, 2 or 3, wherein said membrane being selectively permeable.

5. An apparatus according to any of the preceding claims, wherein a valve is adapted to open when activated by the controller to provide a passage through which gases flow into and/or out of the container.

6. An apparatus according to any of the preceding claims, wherein the controller is adapted to open a valve when the concentration or volume of gas within the container reaches or falls to a specified level.

7. An apparatus according to any of the preceding claims, wherein the container is a building.

8. An apparatus according to claim 7 wherein the building is a cool store.

9. An apparatus according to any of the claims 1-8, wherein the apparatus is adapted to provide a apparatus for a transportation or shipping container, said container being substantially rectangular in shape and include two side wails, a roof, floor, rear wall and a front wall where the rear wall also doubles as a door or entrance into the interior of the container.

10. An apparatus according to any of the preceding claims, wherein the inlet may be joined with an outlet to provide a bidirectional flow means.

11. An apparatus according to any of the preceding claims, wherein the container incorporating one bi-directional flow means located at the rear of the container and one bi-directional flow means located at the front of the container, and each of said bi-directional flow means including one valve.

12. An apparatus according to any of the preceding claims, wherein said selectively permeable membrane being formed from a polymeric film, such as plastic, which is adapted for gas permeation.

13. An apparatus according to claim 12, wherein said polymeric film being more permeable to carbon dioxide than to oxygen gas.

14. An apparatus according to claims 12 or 13, wherein said polymeric film being positioned to affix to the base and roof of the container, as well as the two sidewalls of the container and thereby dividing the container into two regions, the first region being adapted as a storage compartment and being located near the front of the container, and the second being adapted as a gas buffer region being located at the rear of near the door end of the container.

15. An apparatus according to any of the claims 12, 13 or 14, wherein said polymeric film being located substantially near the rear of the container.

16. An apparatus according to any of the claims 11 - 15, wherein said polymeric film being located to provide a void or buffering region around at least one bi-directional flow means which is adapted to control the flow of gas into the buffer region and the flow of gases out of the buffer region both into the storage compartment and completely out of the container.

17. An apparatus according to any of the preceding claims, wherein said gas permeable film being adapted to facilitate the flow of carbon dioxide from the cargo compartment of the container to the gas buffer region of the container.

18. An apparatus according to any of the preceding claims, wherein said gas permeable film being adapted to facilitate the flow of oxygen from the gas buffer region of the container to the storage compartment of the container.

19. An apparatus according to any of the preceding claims, wherein said gas permeable film being adapted to allow oxygen to flow through it, provided that the direction of such flow is opposite to that of the carbon dioxide.

20. An apparatus according to any of the preceding claims, wherein a sensor located within the container being adapted to sense the concentration and/or

volumes of carbon dioxide and/or oxygen within the cargo storage compartment of a container.

21. An apparatus according to any of the preceding claims, comprising bi-directional flow means located near the rear end of the container, said bi-directional flow means being able to open to allow gas to flow into the buffer region.

22. An apparatus according to any of the preceding claims, comprising bi-directional flow means located near the rear end of the container, said bi-directional flow means being able to open an inlet so that gas may flow into the cargo region of the container.

23. An apparatus according to any of the preceding claims, comprising bi-directional flow means located near the front end of the container, said bi-directional flow means being able to open to allow gas to flow into the buffer region.

24. A apparatus according to any of the preceding claims, comprising bi-directional flow means located near the front end of the container, said bi-directional flow means being able to open an inlet so that gas may flow into the cargo region of the container.

25. A container having a plurality of walls, and at least one inlet and/or outlet, including an apparatus for controlling the composition of gases within the container,

the apparatus including at least one sensor, at least one controller and at least one gas permeable membrane being adapted to facilitate the passage there through of different molecules at different rates,

said membrane defining a first region and a second region, **characterized in that** the first region being for holding cargo and the second region defining a gas buffer region, apart from the first region,

said at least one inlet and/or outlet being in communication with said buffer region.

26. A container according to claim 25, wherein said membrane defines a gas buffer region located inside said container.

27. A container according to claims 25 or 26, wherein said membrane defines a gas buffer region located on the exterior of said container.